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United States
Circuit Court of Appeals
For the Ninth Circuit.

JOSEPH E. WARD,

Appellant,

vs.

ROGERS BROTHERS COMPANY, a Corporation,
Appellee.

Transcript of Record.

Upon Appeal from the United States District Court for the
Southern District of California, Southern Division.

Filed

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F. D. Monckton,
Clerk.

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in italic; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in italic the two words between which the omission seems to occur. Title heads inserted by the Clerk are enclosed within brackets.]

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Names and Addresses of Attorneys.

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For Appellee:

Messrs. W. S. WRIGHT and HARTLEY
SHAW, Washington Building, Los Angeles,
California. [1*]

Citation [on Appeal].

UNITED STATES OF AMERICA,—ss.

The President of the United States to Rogers
Brothers, Company, Greeting:

You are hereby cited and admonished to be and appear at a United States Circuit Court of Appeals for the Ninth Circuit, to be holden at the city of San Francisco, in the State of California, within thirty days from the date hereof, pursuant to an order allowing an appeal entered and of record in the clerk's office of the United States District Court for the Southern District of California, Southern Division, in suit in Equity No. A-3 therein, and wherein Joseph E. Ward is plaintiff and appellant, and you are defendant and appellee, to show cause, if any there be, why the decree of said court made and entered December 2d, 1915, dismissing plaintiff's Bill of Complaint should not be corrected, and why speedy justice should not be done to the parties in that behalf.

WITNESS, the Honorable OSCAR A. TRIP-

*Page-number appearing at foot of page of original certified Record.

PET, United States District Judge for the Southern District of California, Southern Division, this 14th day of January, 1916.

OSCAR A. TRIPPET,

United States District Judge.

Received a copy of the foregoing Citation this 20th day of January, 1916.

HARTLEY SHAW,

Solicitor for Defendant-Appellee. [2]

[Endorsed]: U. S. District Court, Southern District of California, Southern Division. Joseph E. Ward vs. Rogers Bros. Co. Citation. Filed Jan. 25, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [3]

In the District Court of the United States, in and for the Southern District of California, Southern Division.

A-3—EQUITY.

JOSEPH E. WARD,

Complainant,

vs.

ROGERS BROS. COMPANY,

Defendant. [4]

[Bill of Complaint.]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY.

JOSEPH E. WARD,

Complainant,

vs.

ROGERS BROS. COMPANY,

Defendant.

To the Honorable the Judges of the District Court of
the United States in and for the Southern Dis-
trict of California, Southern Division:

Joseph E. Ward, a citizen of the United States of
America and resident of the city of Long Beach,
California, brings this, his Bill of Complaint, against
Rogers Bros. Company, a corporation organized
and existing under the laws of the State of Cali-
fornia and having its principal place of business in
the city of Los Angeles, California, and thereupon
your orator shows unto your Honors:

1.

That heretofore and prior to the 14th day of
March, 1910, your orator was the original, first and
sole inventor and discoverer of a certain new and
useful Process of Making Roadways, not known or
used by others before his invention or discovery
thereof or patented or described in a printed publi-
cation in the United States of America or any foreign
country before his invention or discovery thereof, or
more than two years prior to [5] his application

for letters patent of the United States of America therefor as hereinafter set forth or in public use or on sale in the United States of America for more than two years prior to his said application for letters patent therefor and not abandoned.

2.

That on March 14, 1910, your orator made application in writing in due form of law to the Commissioner of Patents of the United States of America in accordance with the then existing laws of the United States of America in such case made and provided and complied in all respects with the conditions and requirements of said law; that on May 2, 1911, letters patent of the United States #991,043 were duly and regularly granted and issued and delivered by the Government of the United States of America to the orator whereby there was granted and secured to your orator and your orator's heirs, legal representatives and assigns for the full term of seventeen (17) years from and after said May 2, 1911, the sole and exclusive right, liberty and privilege of making, using, practicing and vending to others to be used the said invention throughout the United States of America and territories thereof; that said letters patent were issued in due form of law under the law of the United States Patent Office and duly signed by the Commissioner of Patents, all as will more fully and at large appear from said original letters patent or a duly certified copy thereof ready in full to be produced as may be required, and that your orator is now the owner and holder thereof.

3.

Your orator further shows to your Honors that the said [6] invention so set forth, described and claimed in and by said letters patent is of great renown and has been extensively practiced by your orator and by licencees of your orator since the grant, issuance and delivery of said letters patent, and that the trade and public have generally respected and acquiesced in the validity and scope of said letters patent and of the exclusive rights of your orator therein and thereunder, and that defendant has had full knowledge of the said letters patent and of the rights of your orator thereunder.

4.

Your orator further shows unto your Honors that notwithstanding the premises but well knowing the same and without the license or consent of your orator and in violation of said letters patent and of the rights of your orator thereunder, the said defendant within the year last past and in the Southern District of California, Southern Division thereof, to wit, in the county of Los Angeles, State of California, has used and caused to be used the said process of making roadways and is now using and causing the same to be used and has infringed upon the exclusive rights secured to your orator by virtue of said letters patent, and that the process of making roadways now utilized by defendant is an infringement upon said letters patent and is the invention described and claimed in said letters patent, and that said defendant threatens and intends to continue to use the said patented invention and process and will

continue so to do unless restrained by this court, and is realizing as your orator is informed and believes large profits, gains and advantages therefrom, the exact amount of which is unknown to the orator and your orator prays discovery thereof: That by reason of the premises and unlawful acts of the defendant aforesaid [7] your orator has suffered and is suffering great and irreparable injury, and that from the wrongs and injuries herein complained of your orator has no plain, speedy or adequate remedy at law, and is without remedy save in a court of equity where matters of this kind are properly cognizable and relievable.

To the end, therefore, that the said defendant, Rogers Bros. Company, may if it can show why your orator should not have the relief herein prayed and may according to the best and utmost of its knowledge, recollection, information and belief, but not under oath, (and answer under oath being hereby expressly waived), full, true, direct and perfect answer make to all and singular the matters and things hereinbefore charged, and your orator prays that the defendant, Rogers Bros. Company, its officers, agents, employees, associates, attorneys and confederates, may be enjoined and restrained both provisionally and perpetually from further infringement upon said letters patent and be decreed to account to and pay over unto your orator the gains and profits realized by defendant from and by reason of infringement aforesaid and may be decreed to account to and pay unto your orator the damages suffered by your orator by reason of said infringement,

together with the costs of this suit and for such other further or different relief as equity and good conscience shall require.

May it please your Honors to grant unto your orator a writ of subpoena of the United States issued out of and under the seal of this court and directed to the said defendant, Rogers Bros. Company, commanding it to answer to this Bill of Complaint and to stand to and abide by and perform such orders and decrees as [8] to your Honors may seem meet in the premises.

And your orator will ever pray.

JOSEPH E. WARD.

FREDERICK S. LYON,

Solicitor and of Counsel for Complainant.

State of California,

County of Los Angeles,—ss.

Joseph E. Ward, being duly sworn, on oath, says that he is the complainant named in the foregoing Bill of Complaint; that he has read said Bill of Complaint and knows contents thereof, and that the same is true of his own knowledge, except as to such matters and things as are therein stated and charged on information and belief, and as to such matters he believes said Bill of Complaint to be true.

JOSEPH E. WARD.

Subscribed and sworn to before me this 7th day of February, 1913.

[Seal]

LORRAINE E. DURROW,

Notary Public in and for Los Angeles County, State of California.

[Endorsed]: No. A-3—Equity. United States District Court, Southern District of California, Southern Division. Joseph E. Ward, Complainant, vs. Rogers Bros. Company, Defendant. Bill of Complaint. In Equity. Filed Feb. 10, 1913. Wm. M. Van Dyke, Clerk. By C. E. Scott, Deputy Clerk. Frederick S. Lyon, 504-7 Merchants Trust Building, Los Angeles, Cal., Solicitor for Complainant. [9]

*In the District Court of the United States for the
Southern District of California, Southern Division.*

JOSEPH E. WARD,

Complainant,

vs.

ROGERS BROS. COMPANY,

Defendant.

Answer.

Now comes Rogers Bros. Company, defendant in the above-entitled suit, and answers the bill herein as follows:

I.

The defendant is without knowledge as to the subject matter of the allegations contained in paragraph I of said bill and upon that ground denies that the plaintiff was the original, first or sole inventor or discoverer of the process of making roadways therein mentioned, and on the same ground denies that said process was not known or used by others before the invention or discovery thereof by the plaintiff or was not patented or described in a printed publication in

the United States of America or any foreign country before plaintiff's invention or discovery thereof or more than two years prior to his application for letters patent therefor, and for the same reason denies that said process was not in public use or on sale in the United States of America for more than two years prior to the plaintiff's said application for letters patent.

II.

Defendant admits the allegation in paragraph II of said bill except as to the statements therein that the plaintiff is now the owner and holder of the said patent therein referred to, [10] to, as to which statement defendant is without knowledge and therefore denies the same.

III.

The defendant denies that the invention set forth and described in said bill and in the letters patent therein referred to, is of great renown or has been extensively practiced by the plaintiff or by licensees of said plaintiff, since the grant, issuance and delivery of said letters patent and denies that the trade or the public have generally respected and acquiesced in the validity and scope of said letters patent or of the exclusive rights of the plaintiff therein or thereunder.

IV.

The defendant denies that it has within the year last past or at any other time in the county of Los Angeles, State of California, or at any other place, used or caused to be used the process of making road ways referred to in said bill and described in said

patent therein mentioned, and denies that it is now using or causing to be used the said process of making roadways; and denies that it is infringing upon any exclusive or other rights secured to the said plaintiff by virtue of said letters patent. The defendant denies that any process of making roadways now or at any other time utilized by the defendant is an infringement upon said letters patent, or is the invention described or claimed in said letters patent, and the defendant further denies that it threatens or intends to continue the use of said patented invention or process or will continue so to do unless restrained by this court. Defendant further denies that [11] it is realizing any profits, gains or advantages from the use of the said patent or from the infringement thereof, and denies that by reason of any acts of this defendant plaintiff has suffered any injury.

V.

Defendant further alleges upon its information and belief that the plaintiff was not the original discoverer or inventor of a process of making roadways described in the invention referred to in said bill, and alleges that prior to the invention or discovery thereof by the plaintiff the same had been invented and discovered by one Tomer and had been used by him in the neighborhood of the city of Visalia, in the County of Tulare, State of California, and also in the neighborhood of the city of San Jose, in the county of Santa Clara, State of California, and defendant further alleges on its information and belief that the said process of making roadways had, prior

to the invention or discovery thereof by the plaintiff and more than two years prior to the application of the plaintiff for a patent therefor, been known and used by divers and sundry other persons in various parts of the United States, whose names and places of use are to the said defendant unknown, and further alleges on its information and belief that said process had been mentioned and described in divers and sundry publications prior to the invention or discovery thereof by the plaintiff and more than two years prior to his application for a patent therefor, the names and dates of said publication being at the present time to the defendant unknown; and defendant prays that upon ascertainment of the matters so unknown to it it may have leave to amend its answers in that respect. [12]

WHEREFORE, our defendant prays that the plaintiff take nothing by this suit and the defendant be hence dismissed with its costs.

W. S. WRIGHT,

HARTLEY SHAW,

Solicitors for Defendant.

[Endorsed]: Original. No. A-3. In the District Court of the United States, Southern District of California, Southern Division. Joseph E. Ward, Plaintiff, vs. Rogers Bros. Company, Defendant. Answer. Received copy of the within — this 4 day of April, 1913. Frederick S. Lyon, G. T. H., Attorney for ————. Shaw & Stewart, 529-532 Stimson Building, 256 S. Spring St., Los Angeles, Cal., Attorneys for Defendant. Filed Apr. 4, 1913.

Wm. M. Van Dyke, Clerk. Chas. N. Williams,
Deputy Clerk. [13]

*In the District Court of the United States, in and for
the Southern District of California, Southern
Division.*

IN EQUITY—A-3.

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS CO.,

Defendant.

Decree.

This cause came on to be heard at this term and was argued by counsel for the respective parties, and thereupon on consideration thereof it was ordered, adjudged and decreed that the plaintiff take nothing by this action; that the plaintiff's bill herein be and the same is hereby dismissed, and that the defendant recover its costs herein, taxed at \$——.

Done in open court this 2d day of December, 1915.

TRIPPET,

Judge.

Decree entered and recorded December 2, 1915.

WM. M. VAN DYKE,

Clerk.

By Leslie S. Colyer,

Deputy Clerk.

OK. as to form.—TKL. [14]

[Endorsed]: Original. In Equity—A-3. In the District Court of the United States in and for the Southern District of California, Southern Division. Joseph E. Ward, Plaintiff, vs. Rogers Brothers Co., Defendant. Decree. Filed Dec. 2, 1915. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. Received copy of the within decree this 1st day of December, 1915. Frederick S. Lyon, Attorneys for Plaintiff. Hartley Shaw, 1023 Washington Building, Los Angeles, California, Attorney for Defendant. [15]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. A-3.

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS COMPANY,

Defendant.

Statement of Evidence Under Equity Rule 75.

[Testimony of Joseph E. Ward, in His Own Behalf.]

JOSEPH E. WARD, testifying on his own behalf, testified that he was the plaintiff to whom letters patent Number 991,043 were issued; that he was familiar therewith and was engaged in road construction and had demonstrated the process of said letters patent from New York to British Columbia to the extent that he had built stretches of road; his work had

(Testimony of Joseph E. Ward.)

largely been in Los Angeles County in California; that he had built roads in New York, North Carolina, Texas and British Columbia under this process; that he has issued eighty-nine licenses for the use of this process, the city of Los Angeles and the county of Los Angeles being licensees, and the State of California being a licensee for the use of the process with one or two of the machines and some of the other counties of the State of California have licenses for the use of the said patented process with certain machines; that the licensees simply purchase the machines from him and in connection with the purchase of the machine a license to use the process without further compensation in connection with the use of such machine is granted by him; that on January 2, 1913, he saw defendant constructing a piece [16] of road called Clearwater Road on the Salt Lake and Southern Pacific tracks over toward Clearwater in Los Angeles county. On February 17, 1913, he saw defendant constructing a piece of road at the lower end of the Harbor Boulevard in Wilmington, Los Angeles county, California. On January 21st, 1913, he saw defendant working on a piece of road for the county of Los Angeles on the San Fernando road in Los Angeles county; that he took two photographs showing the apparatus as used by defendant, one of the Harbor Boulevard use and the other as used by defendant on the Clearwater road (Complainant's Exhibits 2 and 3, respectively). Comparing the process of Patent Number 991,043 (Complainant's Exhibit 1), with the process used by defendant on the

(Testimony of Joseph E. Ward.)

Clearwater and Harbor Boulevard roads, Mr. Ward says:

“A. Well, the patent covers the process of applying the oil under pressure, exposing it to the air and mixing it in the air, and with the air causing the oil to oxidize by the fact that it has been broken up under pressure much more readily than it would if it was applied the old way in streams by gravity. The machine that the Rogers Brothers have does identically the same thing. They use the same pump to give this pressure. With their trucks they drive the pump off of a shaft. The results obtained are identically the same.”

Defendant uses a nozzle and the oil comes out in a fan shape; the pressure forces it out in a fan shape spray directly downward; this spray is very thin; it is broken up and you can see through it in many places; it immediately covers every particle of the road surface and the pressure behind it shoots it into the voids and interstices of the road surfaces so that every particle is immediately covered. As the apparatus moves [17] forward the air comes right up against this sheet and the force of these sprays are fan-shaped streams coming down causes, as I understand it in my way of telling it, a vacuum which immediately mixes with the oil; the fan-shaped sprays or sheets of oil draw the air down and intermingle the oil and air causing the oil to oxidize much quicker and harden much quicker; defendant company did not have any license or authority from plaintiff for the use of such process on either said San Fernando,

(Testimony of Joseph E. Ward.)

Clearwater, or Harbor Boulevard roads.

Prior to the introduction of this process the specifications for road building throughout California required as high as two gallons and a quarter of oil to the square yard; since the introduction of my process the specifications generally throughout California require a gallon or less to the square yard. The difference in this process amounts to a saving of at least one-half the cost of oil.

On cross-examination Mr. Ward says: The appearance of oil as discharged from the machines built by plaintiff is a very thin film; a fan-shaped spray discharged directly down onto the ground. The nozzles used in the apparatus are such as to cause a thin fan-shaped spray or jet; the nozzles used have a sort of lip projection against which the oil strikes to break it up; this is for the purpose of breaking up the oil as it is discharged. The nozzles are arranged from six inches to two feet above the ground. At the time he applied for the patent the nozzles were placed approximately ten or twelve inches from the ground. I have collected approximately \$1,500 royalties for Oregon, British Columbia and Washington. Defendant commenced infringing approximately January, 1913. The only royalty I collected in California was \$800 from J. R. Ott [18] Company. Have collected no licenses in the rest of the United States. The only license taken by Los Angeles county was in July, 1912, to Los Angeles County Highway Commission at which time I sold them the equipment for building two machines. Los Angeles

(Testimony of Joseph E. Ward.)

county is now using other machines not purchased from me or licensed by me; *you could not the effect of my process without pressure*; pressure is certainly covered in the patent; people might use pressure and shoot the oil down and around the stream and not break it up at all; breaking the oil up under pressure is one of the essential features of the process; atomizing means breaking the oil up under pressure; you can break it up fine or coarse or you can break it up coarser; it is absolutely impossible to break a very heavy oil up into as fine particles as you can water or lighter oils and the temperature of the oil has everything to do with it; the heavy oils are usually applied to the road for about 400° Fr. By heavy oil I mean ninety to ninety-five per cent asphalt. The oil now generally used for road making is from ninety to ninety-five per cent asphalt. It is possible to break these oils up in fairly fine films or particles where discharged under pressure at a temperature of 400°; you could not make a mist out of them; if the oil was light it could be atomized simply by pressure in striking the *atomized* obstruction and without heating but a heavy oil has to be heated as well as forced out under pressure and heating alone would not atomize it. The amount of pressure depends on the quantity and the temperature of the oil and the force necessary to force it out including the density of the oil. With my machines I use from eight to fifty pounds per square inch; with heavy oils, ninety to ninety-five per cent asphalt, at 400° temperature, I use from twelve to eighteen pounds pressure. De-

(Testimony of Joseph E. Ward.)

fendants' Exhibit "A" is substantially one of the nozzles used by me. I have examined the nozzles used [19] by defendant and seen them in operation. Defendant's Exhibit "B" is like defendant's nozzles. When I observed defendant's nozzles in operation the oil was coming out of the openings in a thin film, or atomized; a thin sheet or thin film discharged about six or eight inches above the ground; defendant's machine is so arranged that you can raise or lower the point of discharge; the oil came out in a thin, fan-shaped sheet or film broken by pressure; it broke very close to the ground; possibly some of the sheets would break two or three inches from the ground and some of them would be closer to the ground; it separated into atoms and broke into small or big or large; oil as discharged from this machine did not separate into strings or streams of oil. By atom I mean a large or small particle of oil; oil may be atomized thin or it may atomized coarse; in looking at the oil as discharged from defendant's machine I couldn't distinguish any individual atoms, but you could see that it was broken up; with the defendant's machines, as the machine was moving forward and the fan-shape jets were being projected out and downward, the volume of air would naturally come in and form a vacuum where the oil came in contact with the road; as I understand the vacuum it would be binding of any object to another by the air,—by the air chamber; the vacuum tends to increase the oxidation of the oil; I am not a chemist and only know the results obtained by my process; I

(Testimony of Joseph E. Ward.)

know we built the best roads ever built in the United States and know that by the use of my process the oil is caused to harden much faster even with the same quantity of oil; prior to inventing my process I knew of oilers that worked by force of gravity; when I saw defendant's machine in operation the oil as it was discharged was mixed with air; the oil passing through the air all the way down would [20] be suspended in the air and there would be air all around it from the time it left the nozzle until it got to the end of its downward journey; the oil would certainly be suspended in the air; your hand would be suspended in the air, as an illustration; as I understand it, there would be air all around it, that is my definition of being suspended in the air; if you take a brick and hold it in your hand and drop it, the brick is suspended in the air,—there would be air all around it; if you pile up a pile of brick there would be air all around the bricks; they would be suspended in the air; at the time I applied for the patent in suit they were using a much lighter gravity oil than is now used; in the lighter oil the volatile matter in it would come off quicker and it would mix with the road quicker than the heavier oil because the heavier oil would not penetrate and there is less volatile matter to come off; at the time that I saw defendant's machine at work they were building a street or part of a county highway; they were putting a bituminous surface on a rock macadam road; I don't remember whether there was any dust on the surface where they were spreading the oil; rock had been deposited and rolled down with a roller.

[Testimony of Gilbert E. Bailey, for Plaintiff.]

GILBERT E. BAILEY, called for plaintiff, testifies: He is sixty-three years of age; in charge of the department of geology of the University of Southern California, and has been for five or six years; prior to that time had charge of the Department of Chemistry in the State University of Nebraska; Department of Metallurgy of the School of Mines of South Dakota, and has been engaged in geological work and in commercial chemistry for a good many years with his own laboratories, manufacturing and inventing; studied chemistry in the University of Chicago and the University of Michigan, giving particular attention to the subject of organic [21] and inorganic chemistry for forty-five years; has studied asphaltic oils; testified as one of the experts in the dustless roadbed case in this court involving the so-called Mattern oil road patent in 1905; has examined and is familiar with patent 991,043 in suit; has observed the operation of such process in making roadways; referring to the patent in suit, and particularly with the term "suspended in the air," as used in said patent, he says:

"A. I think the word as shown by the operation of the machine means this: The oil issuing from the nozzle passing vertically downward passes through ten to twelve inches of air. In that passage, in one sense, it is suspended in the air the same as any body moving in the air—a cannonball or a bullet. The oil passing from the nozzles down interferes with the air in passing through it so that there is a tendency

(Testimony of Gilbert E. Bailey.)

to cut the particles of the oil with air. Now, when the oil strikes the ground with the force given by the pump, it penetrates to a certain degree the dust or dirt of the surface and mixes with that dust, and the air that it carries down in that passage is held in those spaces, and to that extent is mixed or suspended with the air. In other words, the air when brought in contact with the particles of oil so that the oil absorbs it and operates to oxidize, the effect being that the film that is put on the road is thickened and hardened. In regard to the oxidation, I notice in going behind those machines and as shown in the photographs that you can see through the film. As it comes down it is transparent. Therefore it must be exceedingly thin at those transparent points, and the particles in it must be of very narrow diameter. That film in coming down under pressure, the very fact that they branch out in a fan shape, shows that they rebound—that is, there is a separation which would facilitate the mixing of the air with [22] the oil, and as the oil comes down vertically with force it is also moving forward, so that the downward rush would tend to create a vacuum down, in drawing air against this thin film; and as it moves forward the air comes in contact with it. The thinness of the film seemed to me in watching the machine, and its fan shape, and the force it came down with, seemed to be its peculiarities as distinguished from sprinkling or flowing from a spout and so on.”

The breaking up of the oil into thin particles or sheets and the envelopment thereof in the air brings

(Testimony of Gilbert E. Bailey.)

a greater quantity of air in a lesser time in contact with the oil, increasing oxidation; as another illustration of an envelope of substance about crude oil is the common one of water and oil that we have so frequently at the oil wells. Water comes with the oil and the particles of oil fill with water and it is difficult to separate the two; such body of oil and water is similar *nd* the body of oil and air as thus projected downward into the air by the process of this patent; the oil striking the ground with force and forced into the roadway surface has a tendency to carry the air down and hold it there and when it is so held it is really quite difficult to separate it in any form; on February 17, 1913, I accompanied Mr. Ward to the Harbor Boulevard near Wilmington and inspected the defendant's machine in operation and compared the process as being there used by defendant with the disclosure of the patent in suit. I should judge and say that they were the same and the effect was the same; the photographs show that they gave the same fan shape and were forced down under pressure and produced the same effect on the road.

On cross-examination Mr. Bailey testified: Atomization in the patent means a small subdivision of the material, asphaltum or oil without destroying the identity of [23] the material; it is still asphaltum and still oil no matter how small the atom may be; atomization in this sense means the causing of oil to be divided up into small particles; oxidation of

(Testimony of Gilbert E. Bailey.)

oil is seen in the thickening and hardening of the oil; anything that absorbs and chemically unites with the free oxygen of the air is said to be oxidized; a combination of any material with the oxygen in the air is oxidation; a chemical combination; all oxidation is the same whether a stick of wood burns in a stove or decays in the forest, the chemical result is the same; the only difference is in the time occupied; the oxidation of oil on the road would not be as complete as the burning of it in fire because in the road the oxygen is still combined with the asphalt, the carbon or the hydrogen of the asphalt, whereas in burning it in the stove it is broken up still further and goes into gases, etc.; so far as the beginning is concerned it is the same chemical process, it unites with the oxygen; I have seen Mr. Ward's machine in operation probably half a dozen times and particularly to see the operation of the nozzles,—how the oil looked; the oil issued from the nozzles in that fan shape form and formed a very thin film that was transparent, and the pressure was evidently considerable because you could hear a hissing sound or noise showing the force exerted, and it struck the surface of the ground with force, but what I was interested in in watching it was to see the difference in the form of those fans as it was like drawing a varnish brush along on the ground and forming a thin film on the ground rather than spraying it or putting it on with a large hose we did in the early days; I was interested too in the fact that the film was transparent. The film as it

(Testimony of Gilbert E. Bailey.)

came between the nozzle and the ground; that film itself was so thin that it was transparent; you could see through it; in parts you could detect some of the broken up portions, but the [24] general effect to the eye was that of a film. The oil undoubtedly was broken up and "atomized" was the word that you could use to describe it; it was well exposed to the action of the air, and the force coming down tended to draw the air to it, and the thin sheet gave the air a chance to get at the particles; I saw defendant's machine along February 17, 1913, on the Harbor Boulevard; the oil came out of the nozzles in a thin triangular sheet or film; by looking at it you get the same idea on the eyes as you do from the photograph; so far as the currents went, a person might have considered the oil came out in an unbroken sheet or film, but if you examine the nozzle it would not be so, because if you examine inside of one of those sparkling nozzles you get an interruption there that tends to break up or pulverize or disturb the continuity of the oil; in other words, the effect would not be the same as if flowing through a tube and dropping out of that tube by gravity because there is force behind it, and a piece that it runs over there breaks it and gives it the spray; that is the very object of the slot nozzle and the piece turned in there is to break it against the sharp edge; other than that it would show in the solid form; I could not see how much was smoke and how much was dust and fine particles in any cloud or mist arising after the oil hit the ground.

[Testimony of Alfred E. Burns, for Defendant.]

ALFRED E. BURNS, called on behalf of defendant, testified; that he was fifty years of age and had been engaged in business as contractor in the oiling of roads for fifteen years in Los Angeles County, California; Los Angeles County was just experimenting with oil roads when he came there; in 1901 the device most common in use then was a trough independent of a tank which was attached to and dragged loosely behind a tank conveying the oil; the oil ran into that trough or box from an outlet in the rear of the tank and was distributed through a series of petcocks [25] along the edge of the box; after that an ordinary Studebaker sprinkler was used; that was the same device that they use on water-wagons; it discharged it by the pressure of the gravity of the oil with the weight behind it, the pressure decreasing as the weight of oil in the tank decreased; the discharge was through the slot; the oil sprayed out in prism shape flow onto the road; it was a straight sheet; it dropped down vertically; these sprinklers were carried about two feet above the road; sometimes they used two small outlets each about a foot above the road; these machines were commonly used in 1901; the roads were graded up to the grade required, and the surface made smooth and without rolling the oil was applied; then the surface was harrowed until the oil was mixed within possibly one inch of the surface; a plank was then drawn over the surface, and the surface was then rolled; I knew a man named Hatfield; in the fall of

(Testimony of Alfred E. Burns.)

1901 or the spring of 1902; on a tract that was called the Angelus Vista Tract in Los Angeles; he oiled one street and some portions of another; he was improving his machinery at that time and did not complete the contract; there was a number of persons present; then street superintendent, Maguire; George Wilton of the firm of Fairchild, Gilmore & Wilton, and myself, and Charlie Stansbury, a grading contractor, and some of our men; Mr. Hatfield forced the oil through a perforated tube under steam pressure; oil came out in an oily mist; the outlets were about three inches above the ground; if the surface was rough he would raise it higher; the oil was scattered into the mist and it scattered out in a little cloud all along behind the tube.

On cross-examination Mr. Burns says: I never saw this Hatfield machine except the once; the Hatfield experimental devise threw the oil probably twelve or fourteen inches behind the machine; he had the engine from the [26] boiler of which he used the steam; his distributing tube was a double tube both perforated; into the outer tube, by gravity, he ran oil in the inner tube, by pressure, he forced the hot steam. Through perforations in the inner tube steam was forced into the outer tube full of oil, from which it again was projected in clouds through perforations onto the surface of the street; I don't know whether he had a half dozen rows of these outlets in the outer tubes; of course he was experimenting and he took first one row and then two; he had out-

(Testimony of Alfred E. Burns.)

lets in the two, but whether there was one, two or three—I guess he had different tubes with different holes in each; my firm never used any of this apparatus after that.

[Testimony of Ellis Tomer, for Defendant.]

ELLIS TOMER, called on behalf of defendant, testified: resides in Stockton; is engaged in the business of oiling roads and making road-oilers; first began seven years ago on March 17, 1908, at Visalia, California, oiling the dust roads there, the dusty streets to settle the dust; he was spraying trees and the city council wanted to know if he could settle with oil, and ask him to come in and try out, and so he did; he had a gas engine and pump and Bordeaux spray nozzles like Defendant's Exhibit "A"; the oil settled the dust; the oil came from the machine in a fine spray or mist; he oiled in 1908 perhaps twenty miles in all; second season he had a different patent machine; with the first machine he oiled the streets twice; the first time he went over the streets with a light coat to settle the dust, and it did not take that long to evaporate, so he went over the roads again with another coat to keep the dust down, and went over those streets twice in one year; was using light gravity fuel oil; might carry about twenty-five per cent asphalt; second machine took to Stockton; it used Bordeaux spray nozzles; the oil came out vaporized, [27] fan shaped; the first machine was a tank wagon with pump, boiler and manifold all on the same wagon; the next thing was a two unit machine which trailed on behind, but all machines

(Testimony of Ellis Tomer.)

used the same nozzles discharging the oil in a fan-shape; the oil was broken up fine enough so I could make a film on a rock street with it without leaving any streaks; the Visalia streets were dirt roads with dust on them but no rock; he oiled streets in Hanford, Selma and Santa Cruz during 1908; dirt streets in Visalia and Selma and waterbound macadam in Santa Cruz; by waterbound macadam, I mean rock rolled down; all his machines discharged the oil in fan shape; in a fan spray; under pressure from the machine; the nozzles were arranged about eighteen inches above the ground; when there was wind the wind would blow the spray quite a ways.

On cross-examination Mr. Tomer says: That the purpose of the steam boiler on the second machine was to blow the manifolds out so that the manifolds and oil lines would not become clogged; he didn't use the steam when oiling the roads; the steam was used to run the pump and to blow out the manifolds and oil lines.

[Testimony of George A. Rogers, for Defendant.]

GEORGE A. ROGERS, called on behalf of defendant, testified that he resided in Los Angeles; is the treasurer and general manager of defendant; engaged in the road-making and machinery business and the sale of road-making machinery since 1908; interested in machinery for oiling roads since 1908; 1910 defendant took its first contract in California for an oil surface for roads; in 1908 the only road oiling machines that he saw were the gravity ma-

(Testimony of George A. Rogers.)

chines known as the Baldwin and the White that applied oil to the road by gravity; the system was by gravity from the tank down through a pipe and at first they had holes in a pipe to let the oil through to the road, and then afterwards they [28] tried a slot or long slit in the pipe with a slide arrangement for shutting it off and controlling the flow from the pipe to the road; defendant in 1910 had a contract for oiling the valley road near Rivera, Los Angeles county, and used plaintiff's machine thereon; the nozzles were arranged twelve or fifteen inches off the ground; the machine had a gas engine and pump and the nozzles were small and broke the oil up and sent it out in a spray of cloud or mist not in a solid sheet; so much so that the wind affected it and blew it around; defendant company is using a Monarch road oiler manufactured by Good Roads Machinery Company of Pennsylvania; defendant used the same machine on the San Fernando road, the Harbor Boulevard and near Clearwater in the early part of 1913. Defendant's Exhibit "C" is a picture of defendant's machine applying oil on the streets of Imperial on a concrete pavement; he has seen the Ward machine and the Tomer machine in operation; defendant's machine discharges oil in a solid sheet; the nozzles are along close to the ground about six or eight inches above it; the oil is discharged in a fan-shape sheet practically solid; the sheet continues solid until it strikes the road surface; our effort is to get a uniform application of oil of a certain quantity per square yard.

(Testimony of George A. Rogers.)

“Q. Do you know what the general practice is among engineers in job specifications as to whether they call, in them, for oil to be atomized or not?

A. I do, in this regard, that the first pressure machine used on macadam was used on our road in 1910, the road being built by George A. Rogers, afterwards Rogers Brothers Company, and then I know that the engineers changed the specifications because *because* we could get a much more even distribution of the oil and get the quantity per square yard, and they wanted it pumped out onto the road with pressure. With the gravity machine [29] we had some pressure when we started; but as it got low in the tank the pressure would be very light, and therefore the application would not be uniform.

Q. (By Mr. SHAW.) Do you know whether there is any custom or practice among road and highway engineers as to whether they require oils supplied to their roads to be atomized?

A. I never heard of any engineer taking bids upon atomizing oil or applying it on the road by atomization. I never saw it in any printed specification on which I ever bid; never saw the word “atomized” used in connection with the application of oil to macadam or concrete or anything on which I have bidden in California.”

Defendants use about twenty-five to thirty pounds pressure with their machine; the nozzles are arranged six or eight inches above the ground to get an unbroken sheet of oil to hit the road so that the ap-

(Testimony of George A. Rogers.)

plication will be uniform; with the Ward first machine with the nozzles fifteen to eighteen inches off the ground the wind affected it and defendant didn't get a uniform application of oil as the nozzles were fifteen to eighteen inches above the ground.

On cross-examination Mr. Rogers says: The first pressure machine he ever used was in 1910 on the Valley Road in Los Angeles county, and that was the Ward machine; Mr. Ward himself drove that once or twice; that was the first time the witness knew of a pressure machine being used in Los Angeles county and that was the cause of the adoption of that class of work in Los Angeles county; that together with the fact that about half a dozen machines came out in the east and were being extensively advertised and put on the market; every one changed to pressure machines; defendant continued to use the Ward machine from 1910 to 1912, when somebody stole it. [30]

[Testimony of Frank H. Joyner, for Defendant.]

FRANK H. JOYNER, called on behalf of defendant, testified: that he was fifty-three years of age; a road engineer and a road commissioner for Los Angeles county since *since* April 6, 1914; from February 11, 1911, to April 6, 1914, he was chief engineer for the Los Angeles County Highway Commission and engineer in charge of the maintenance and repairs of the main highways of Los Angeles county; from 1898 to 1911 he was division engineer with the Massachusetts Highway Commission; he had experience in the construction of roads and supervising the

Testimony of Frank H. Joyner.)

construction of them during all of that time; he first knew of oil being used on state highways in 1905; on said roads on Cape Cod, Massachusetts; does not know how it was applied; his first personal knowledge of the application of oil on roads was in 1908 in Massachusetts; saw gravity oilers in 1906 or 1907; that is a common sprinkling water-wagon, and they used the ordinary water spray; the oil came out of this spray; thinks it was three or four inch pipe stuck into a pan and then spread out and fell over onto the road in the form of a thin sheet or film of oil; oil would remain solid until maybe a foot and a half after leaving the pan, and gradually it would separate into streams as it struck the road; that was a thin, light oil; they tried a great many different ways of applying the oil; one of their oilers had a header-pipe in which was fastened a number of smaller pipes a quarter of an inch in diameter; oil from these smaller pipes discharged into a board ten or twelve inches wide that came close to the ground; as the oil ran down that board each individual stream would fan out and it would join in a solid sheet as it left the board and went onto the road; they used that to oil a couple of miles in 1907 or 1908; in Los Angeles county they now use pressure machines, applying the oil under pressure; pressure is developed in one case by compressed air and in another case by a pump; those Los Angeles county have, *have* a slot and a [31] nozzle like Defendant's Exhibit "B"; has seen the defendant's

Testimony of Frank H. Joyner.)

machine in operation on macadam road; their nozzles are six or eight inches from the ground; not positive as to this; oil discharged from this machine in a fan-shape stream; struck the road in a solid sheet or practically a solid sheet; by fan shape means inverted V-shaped; comes out and gets thinner as it approaches the earth; when working satisfactorily strikes the road in a solid sheet; there is always some cloud or mist of oil or smoke or steam that arises in back of those machines when they are running; it is a fog or it might be finely, well, I don't know, it might be finely divided oil; it comes from the oil; when the hot oil comes out in the air and strikes down on the cold stone, a sort of steam or fog will come up; with those machines it does not divide into fine particles until it strikes the road; frequently the road is watered and there you will see the steam; when he observed the defendant's machine the oil between its leaving the machine and its hitting the ground did not have any finely divided particles or cloud or mist around it, and did not appear to be atomizing the oil or to maintain any of oil suspended in the air that he could see; county machines which they are now using are not constructed of any material bought from the plaintiff; states that two or three years ago he had a conversation with plaintiff; plaintiff wanted to give the county of Los Angeles a license to use the machines and *he* refused to accept it; states he has no recollection of having written to Mr. Ward on account of the Los Angeles Highway Commission and asking

Testimony of Frank H. Joyner.)

Mr. Ward for a license to use this road oiling apparatus, or more particularly his method or process; is shown Plaintiff's Exhibit 4 signed by him, admits that he signed it and mailed it to plaintiff under date of March 21, 1912, and stated in that: "I write to ask your permission to make use of your method on these two machines"; [32] states that these two machines referred to were two oil patching machines that one of his foremen was inventing or trying to invent; asserts that the letter was a mere matter of courtesy to Mr. Ward.

[Testimony of William Higley, for Defendant.]

WILLIAM HIGLEY, called on behalf of defendant, testified that he lives in Los Angeles; is fifty-three years of age; oil inspector of the city of Los Angeles, and has been for five years past; his duties are to see that the oil is put on the streets properly; he simply inspects the oil, taking the temperature and seeing that the oil is all right; he is out watching the while the oil is put upon the street; he has seen both pressure and gravity machines; he has seen the plaintiff's device and process and has seen the machines the defendant uses; the Monarch machine; states that with the plaintiff's machines the oil comes out in rather a vapor; the pressure is so strong in back of it it forces it out and the air is all filled up with the oil around the sprinkler; that with the Ward machine the nozzles are usually eight to twelve inches above the ground; some are lower than others; the city of Los Angeles

(Testimony of William Higley.)

is using one of Mr. Ward's machines at the present time; the city does not own these; the contractors own them; the city had one trailer and discarded it; it did not give satisfaction; they could not get the oil on the street properly; people were making complaint about sprinkling their clotheslines, and so forth; the air was all full of oil, and we ruined clothes; it was because the pressure was so strong it brought it out in a vapor; the defendant's, or Monarch, machine puts oil on with a pressure the same as the Ward sprinkler; they carry the nozzles behind just about the same as the plaintiff's machine; from eight to twelve inches above the ground; with these machines the oil comes out in a steady sheet from the [33] nozzle; when it hits the ground *its* a solid sheet of oil, fan-shape like; states he has never seen any sign of oil being atomized around this machine while it was working or any cloud or mist of oil about it; states that Defendant's Exhibit "C" looks like the Ward, or plaintiff's machine; asked if he was sure what it represents, and to take another look at this photograph; says he don't know, can't make it out very well; would not say whether it was a Ward machine or what it is.

On cross-examination he testified: That he does not know anything about the machine which was condemned by the city because it didn't give satisfaction except that it was called a Ward machine; don't know whether Ward furnished any of it.

[Testimony of E. A. Doran, for Defendant.]

E. A. DORAN, called on behalf of defendant, testified: that he was a resident of Los Angeles, forty-four years of age, and an oil operator; had considerable experience in road oiling as a contractor; knew Clarence W. Hatfield, somewhere in the neighborhood of 1902, or 1903, prior to 1904; he had a machine for oiling roads; witness saw it in operation on his work; had a contract at what was called the Angelus Vista tract, south of Sixteenth, about half a mile west of Western in the city of Los Angeles. A. E. Burns was connected with witness company at that time. Hatfield didn't do much work with this machine; all he could say about it, it was brought out there through Charles Stansbury, who spoke to him about having Mr. Hatfield try an oiling device that he had; we were using at that time the gravity system entirely; Stansbury said this man named Hatfield had a machine that he was anxious to try and so we said that we would let him try it out; he brought it out there and I should say we [34] used it on one or two loads of oil, something like that; it was quite awhile ago, and I don't have an absolutely clear recollection *on* it, it was on wheels and attached behind the wagon; the oil was pumped through a series of pipes with, as I remember it, stop-cock control and thence through either some nozzels or pipes of some kind or other to distribute it onto the road to the rear of the machine; the oil came out in a spray behind the machine, not in a stream; as to how fine a spray it was, witness says he would say that at the

(Testimony of E. A. Doran.)

time it hit the ground it would splatter a little and I would like to say, to make myself a little clear on it, that it would be like you take a hose with a coarse spray and hit the ground it would splatter a little; I don't know as I can make myself absolutely clear on it, my recollection is so hazy; I don't know how to make myself clear as to the difference in sprays, or the density, or anything like that; the oil came out in the Hatfield machine in a kind of sheet spray and the further it got from the nozzle the wider it sprayed and the thinner it got; I don't know what shape the openings were in the nozzle; my recollection is that it came out under pressure; that he had a pump or little auxilliary engine; I have had absolutely no reason to refresh my mind on this thing and we dismissed it at the time because we couldn't spend any time with it; we didn't have any time to spare and consequently I have never had any occasion to impress it on my mind at all or try to remember it in any way; I don't know whether I could say at this time whether the road was left in a satisfactory condition for us to handle or not; the main thing I remember about it is that we didn't use it very long and we could not continue with it; Now, whether this was on account of mechanical difficulties entirely, or whether the condition of the road had anything to do with it, [35] I have just forgotten. At that time we were using the Studebaker head and we had tried what Mr. Mattern, the father of practically all this road business had gotten out, which was something in the form of an old-fashioned farmer's

(Testimony of E. A. Doran.)

drill, only it was low and the oil was run by gravity from the tank into this hopper that was probably six feet long, and this hopper had openings and pipes leading from that which were controlled by a series of stop-cocks with a lever; the openings, as I remember, were pieces of pipe screwed into stop-cocks and projecting downward; instead of leaving the pipe ends round, I believe they were flattened so as to kind of widen out; when the hopper was full the openings would discharge the oil into a kind of solid fan shape; of course there was no great pressure because it was strictly gravity; we used this in different places; it was unwieldly and unhandy and we didn't use it only where we practically had to; we used it for commercial work and had three or four of them; the Studebaker was simply a water sprinkling head; it was never designed as oil equipment at all but it answered our purposes very well; it was attached to a four-inch line or outlet from the bottom of the tank and it shot the oil out in a fan or spray directly down onto the road and a little wider, say a foot or a foot and a half wider than the wheel, the outside of each wheel; the opening through which the oil was discharged was really a crack which could be varied in width by set-screws and it was more than half of the diameter of the opening; the oil came out and hit against this sprinkled and reflected downward, and then you could adjust that plate as to width and you would get your light or heavy coating of oil depending on the gravity and temperature at which you attempted to put the oil on; the crack would vary from nothing [36] to

(Testimony of E. A. Doran.)

a good quarter of an inch, possibly more; we put on a great many hundred of thousands of barrels of oil with this device oiling streets; in the first place, if the street was uneven we plowed it and rolled it and then scarify it with harrows loosening up the surface to the depth of an inch or more and then applying the oil and then harrowing again and then applying gravel or sand; the oil paving business was in its infancy and we were trying all of the specifications we could figure out to get the best results; the oil was about fifteen gravity and carried sixty or sixty-five per cent asphaltum and was put on hot; we used that, I should say, prior to 1900 and still use it, I don't mean exclusively, but there are jobs where it can be worked; we simply use the cheapest and best method we can.

On cross-examination Mr. Doran states. That they finished up the Angelus Vista job after abandoning the trial of the Hatfield machines and used a Studebaker head; don't know what became of the Hatfield device after that; never heard of it; continued actively in road oiling until 1910; his firm of Doran, Brouse & Price was one of the largest, if not the largest, oil road contractors in Southern California during that time, if he remembers the Hatfield device correctly, it shut the oil to the rear rather than downward; witness does not remember whether the delivery of the oil in the Hatfield device was by mixing steam with oil to shoot it out but does remember that Mr. Hatfield had a steam boiler rig.

[Testimony of Charles R. Brawner, for Defendant.]

CHARLES R. BRAWNER, called on behalf of defendant, testified: That he resided in Los Angeles; is thirty-five years old and has been a practicing civil engineer for about thirteen years; [37] made his first observations of road oiling in San Francisco in 1904; was employed in the city engineer's office at that time; at that time we used the Studebaker head for road oiling; it is a sort of bell-shaped apparatus that the oil comes straight out and hits the plate and is shot down to the ground in a fan shape sheet; the cylinder part of the opening was probably about five inches in diameter and the slit in the bottom of it extended probably two-thirds around the cylinder; the opening was probably a quarter of an inch wide; the oil came out in a thin sheet and sprayed out fan shape until it hit the ground; if there was no wind, if the air was calm and the opening about right, it would go clear to the ground without a break; if there happened to be a little wind it would break up as it got towards the ground; it was forced out merely by the pressure of gravity; the Studebaker head was in general use for the distribution of oil as early as 1903; the next different machine I saw was the White; that applied the oil in round streams; the oil was led from the tank back to a receiving chamber or cylinder that extended crosswise back of the wagon and was fed from a pipe in the tank; on the bottom was a plate with holes bored in it about every inch and a half; the oil would run into this chamber and through these holes and drop to the ground and in the

(Testimony of Charles R. Brawner.)

bottom of this plate was another that worked back and forth; it had holes in it and when it was pushed over so that they didn't mate it acted as a valve shutting the oil off; since 1906 I have been in Southern California almost continuously connected with street improvements; have had occasion to be on the ground when oiling was being done; am familiar with methods and processes for doing it; had seen the machine of the defendant in operation; in the defendant's machine the flow of oil and the sheet is at right angles to the wagon is going; it is one solid sheet until it hits the ground; that is a photograph [38] of defendant's Rogers Brothers, machine working; when he saw the machine working the nozzles were approximately seven to eight inches above the ground; the oil in the Ward machine comes out in a somewhat similar method; the Ward machine uses a nozzle of smaller bore; the oil coming out has more of a tendency to break; does not break to the extent of atomization; the amount of oil that comes out would depend directly on the pressure; if you *forfee* the same amount through a small nozzle as through a larger nozzle, the tendency to break is greater from the smaller nozzle; the old Studebaker sprinkler is nothing more or less than one of these other nozzles enlarged; the oil came out by gravity; the viscosity of oil is greater than that of water, and consequently it stuck together better and didn't spray so much; in the Monarch machine the oil emits from the nozzle through the opening there and gradually spreads out in width and crosswise of the road, thinning the sheet

(Testimony of Charles R. Brawner.)

as it hits the ground; if you were to take a ground-section of the sheet of oil you could not determine the thickness to it, but there would be thickness to it, probably two or three hundredths of an inch and probably a foot wide; under normal conditions of working it will almost inevitably go in a solid sheet; when the wind blows some particles would blow back a little, it would whip off in needle form, but not in a spray or atomized condition; I have never seen a machine that put on oil that atomized it in all my experience.

On cross-examination Mr. Brawner states: That there is not much difference in road oiling in the ordinary practice; he didn't know the capacity of the pump on defendant's machine;

[Testimony of H. H. Fillmore, for Defendant.]

H. H. FILLMORE, called on behalf of the defendant, testified: that he was a resident of Los Angeles, twenty-seven years [39] old; is a resident engineer for the Los Angeles County Road Department, and has been for five years and a half; is now stationed on Western Avenue and has charge of the road oiling there; they use the Monarch machine; is familiar with the defendant's machine; that he was working for the county at the time defendant did some road work around the San Fernando tunnel and was resident engineer on the job; it was the winter of 1912-1913; defendant had the same machine they now have; plaintiff was up there then; the oil came out of the tank and flowed into the pump; had the appearance of a fan-shaped spray; the ap-

(Testimony of H. H. Fillmore.)

pearance of the oil was just simply a spray just like a spray of water or anything, only it was oil—a fan-shape spray; the outlet was a slot; the oil was the shape of the slot and flowed out under pressure,—a solid sheet; the spray was thicker than a sheet of paper when it struck the earth, because the slot was about one-eighth of an inch wide; where it struck the earth it was still a sheet of oil and about six inches wide and thicker than a sheet of paper; that in the machine used by Rogers Brothers on Western Avenue the oil is sprayed under pressure from a pump and the oil comes out in a fan-shape stream about six inches wide and one-eighth inch thick when it hits the ground.

Q. Now, what condition does the oil remain in as to its physical condition, as to its shape and size, between the slot and the ground?

A. In the same condition, I should judge.

Q. The same as what?

A. You say the same as it leaves the spray and when it hits the ground?

Q. No, what is the condition of the oil, the size and shape of it, between the time it leaves the opening in the machine and the time it hits the ground? [40]

A. Well, it is in a fluid state, under pressure, flowing.

Q. Well, is it divided up, or continuous, or what is it in that respect?

A. Continuous, I would say.

On cross-examination Mr. Fillmore testified: Nothing said in the specifications about pressure whatever;

(Testimony of H. H. Fillmore.)

couldn't tell how much oil would be delivered in a space of a minute through a one-eighth inch opening by an inch opening with twenty pounds of pressure; required one gallon of oil to the square yard in the Western avenue job; the faster the machine runs the more oil is delivered;

On redirect examination Mr. Fillmore testified: A thousand gallon tank covers so many square yards which would be so much oil to one square yard; the oil, after coming through the pump can return to the tank without going out of the sprays through a by-pass which is simply a valve at the back end of the tank; that arrangement is used by letting more oil back into the tank.

On recross-examination Mr. Fillmore testified: The delivery slots on the so-called Ward Brothers machine were as he remembers it, approximately an inch long;

[Testimony of E. F. Godso, for Defendant.]

E. F. GODSO, called on behalf of defendant, testified that he resided in Los Angeles; was forty-three and superintendent of the Los Angeles County Highways for two years; prior to that was assistant chief engineer of the Los Angeles County Highway Commission for one year; has been with the Los Angeles County roads six years; had charge of the construction of roads; saw [41] defendant's *mahines* applying oil to the roads on Western Avenue about ten days ago; on the San Fernando road two and a half years ago between San Fernando and Newhall Tunnel, on the Crutcher road and on the Wright

(Testimony of E. F. Godso.)

road; it came out of those nozzles in the shape of an inverted V; the nozzles are eight or nine inches above the ground; couldn't say exactly; the V then would be between eight and ten inches high, possibly six inches wide at the bottom; oil comes out of it in a solid sheet; can't see through it at all; it puts on a continuous sheet; the edge of these sheets all meet so that it gives a solid sheet or a solid, continuous application as the truck proceeds; the oil strikes the ground as a sheet; it would gradually unfold itself on the pavement; couldn't state the thickness of the sheet when it hits the ground; when you are putting on a very light coat of oil it is almost transparent; when it is heavy it is opaque; we determine the amount of oil on the street by figuring the area the oil is deposited over by the pump and the number of gallons of oil put on.

[Testimony of George S. Benson, for Defendant.]

GEORGE S. BENSON, called on behalf of defendant, testified: he resides in Los Angeles; fifty-two, contractor; has a Monarch machine for oiling roads; also a Ward; the Monarch machine has a nozzle that is wide and spreads out and drops the oil in an inverted V-shape; about two years ago Rogers Brothers did oiling for me on Pacific Boulevard; saw the machine in operation; the oil drops down in what we call a solid sheet; it seems to spread right out on the road; I haven't used the Ward machine for two or three years; at that time they had a round spray that just came down in a kind of a mist rather; they

(Testimony of George S. Benson.)

used more force than we do with this one; more of a vapor. [42]

On cross-examination he states: Mr. George A. Rogers is his son in law; when you apply by the so-called Monarch machine one-eighth gallon of oil to the square yard you have a very thin and finely divided spray that is pushed down into the earth by pressure owing to your heat; you can see that readily;

On redirect examination he states: It doesn't look like a sheet in the Ward machine; it is more like a vapor.

[Testimony of James F. Kew, for Defendant.]

JAMES H. KEW, called on behalf of defendant, testified; that he lives in Inglewood; fifty; from October, 1909 until July, 1913, had been street superintendent for Inglewood; had charge of all road and street oiling in the city; Rogers Brothers did work in Inglewood finished in October or November, 1912, I think; saw the Monarch machine in operation; when the machine was running putting oil on the road when it came down on the macadam it was a thin V shape, an inverted V, and was about six inches wide where it touched the road, it was a thin sheet of oil as it got down to the road it was thinner as the V began to widen out; the sheet was an acute angle at the top, the width of a slot and then came down; the nozzles were about five inches above the road; as the oil left the nozzle of the Ward machine for about three inches it was a little spray perhaps two or three inches wide and then it was thinned out to nothing; it was just in atoms and at the time

(Testimony of James H. Kew.)

it got down to the macadam it was all atomized; the sprays were about eighteen inches from the road; if the wind was blowing hard it came out in small atoms and left streaks on the road. With the Monarch we never had any trouble with the oil blowing at all.
[43]

On cross-examination he states: The Monarch machine at Inglewood had an attachment six feet wide that carried the atomizer; you can spread oil or water without dividing it up into small particles; were using half a gallon of gravity oil, between eighty-five and ninety per cent asphalt, at about 300 or 350° to the square yard at Inglewood; have never seen water sprayed through a Monarch.

[Testimony of Earl B. Gilmore, for Defendant.]

EARL B. GILMORE, called on behalf of the defendant, stated: resides in Los Angeles; twenty-eight; oil producer and refiner and connected with the A. F. Gilmore Oil Company; had experience in distributing oil on roads; had a machine that puts on oil with force, using a Monarch type nozzle; the oil comes out of that nozzle in a fan or V-shape, in a sheet of oil; we elevate the nozzles about six inches from the surface on which we are applying the oil; one individual sheet extends in the neighborhood of twelve inches wide; he saw Rogers Brothers machine when they were fixing the San Vincente Boulevard; between Westgate and Soldiers Home; the oil discharged from the machine came down identically like the ones that we are using; it came down in a sheet and hit the road in a fan shape.

(Testimony of Earl B. Gilmore.)

On cross-examination he states: The sheet from our machines, as it struck the ground is a full eighth of an inch thick; if you are using a very light freely discharging oil, that is, a light oil, spreading a quarter or an eighth of a gallon per square yard, you can not use one of these nozzles in one of our machines. [44]

[Testimony of Charles R. Brawner, for Defendant (Recalled).]

CHARLES R. BRAWNER, recalled, testified: he took the photograph introduced as Defendant's Exhibit "E" at Moneta and Western Avenue where Rogers Brothers are improving Western Avenue Wednesday or Thursday of last week.

On cross-examination he states: The photograph, Defendant's Exhibit "E" was taken after the machine was jacked up to show how the oil came out of that machine; Rogers Brothers' Machine, if he remembers correctly, carries fourteen or fifteen atomizers; some of the nozzles strike each other; it is a true picture of the machine.

[Testimony of George A. Rogers, for Defendant (Recalled).]

GEORGE A. ROGERS, recalled, testified: there have been no changes at all in the method of working the Monarch oiler and nozzle; entire apparatus is the same as when he first bought it; they had two types; the machine used on Western Avenue is the same as they used when they first put it on the truck except that they broke a few links of chain and renewed those a few times and put in new nozzles; they are

(Testimony of George A. Rogers.)

the same kind of nozzles; same machine they used at Wilmington and the San Fernando Road and east of Clearwater on two county roads; the nozzles that he saw on the Tomer machine at Visalia had a little round hole; it was not spreading oil that day; this was in early part 1909; they were making some changes in it; had a little valve inside it to shut off and control it and to close this little hole up; the nozzles were attached to barrels at a manifold and the manifold is supplied with oil by pipes leading to the tank; there was a steam pump between the tank and the nozzle; they had a boiler with which they ran their pump by steam.

On cross-examination he stated: [45] sometimes defendant put two nozzles on one side extra and sometimes one on either side and sometimes they ran them the way, depending on the width of the application that they wanted, that was the best; sometimes this distributor was made in three sections; you can pump oil through two feet, four feet or six feet and cover up a strip of road so that every application would be according to what they wanted to do. The nozzles set on the truck on about six to eight inches off the ground; they got the extra width by disconnecting between and letting the oil come out of certain nozzles and closing others; you can pump the oil through the middle two-foot section so that the other nozzles are shut off entirely, or you can use either end and in that case in order that you can get the quantity of oil desired they have a regulating valve for the pipes and in that case if they only use a third of the oiler instead of all of it they open *ip*

(Testimony of George A. Rogers.)

the pipes and let it go back into the tank as surplus oil; that is the way they gage it to get the right number of gallons per square yard.

On redirect examination he testified: he was naturally on the Wilmington job a good many different times; not certain whether they put a tank of oil on or not when he was there.

**[Testimony of Gilbert E. Bailey, for Plaintiff
(Recalled).]**

GILBERT E. BAILEY, recalled, testified: he was familiar with the old-fashioned Studebaker atomizing devices; from that in the old Studebaker, down to the present time, the action of the different methods of applying oil is divided into three classes; first, a mass; second, in atomising; and third, in a thin film; if you are working with a nozzle in a mass effect, like a hose, flooding, you will get very little air mixed with the oil; if you are working with a spray or mist you would get a maximum amount of air mixed with the oil; if you are working with a film or brush-work you would get a large amount of air mixed [46] with the oil—sufficient to thicken and harden it—depending upon the pressure, the speed of the machine and other things of that character.

On cross-examination he states: in regard to the spraying of this heavy asphaltic road oil through any of those nozzles his experiments had been to this extent; there was an attempt to use an asphaltum preparation for getting the grain of a powder explosive, and they used preparations of asphaltum upon those grains, attempting to get an exceedingly

(Testimony of Gilbert E. Bailey.)

thin film, where there would be a perfect film; they did some of that work in experimenting on that and directing it, and tried it on boards and on glass to see how thick the film would be on the glass without applying it to the explosive itself; they used a Bordeaux nozzles, practically the same as this, in all of their experiments; it was the handiest to get; it was the easiest one to purchase and use.

Stipulated a true, complete and satisfactory Statement of the Evidence and to be approved by Court under Equity Rule 75.

FREDERICK S. LYON,
Solicitor for Plaintiff.
HARTLEY SHAW,
Solicitor for Defendant.

Approved under Equity Rule 75.

OSCAR TRIPPET,
District Judge.

[Endorsed]: No. A-3. United States Circuit Court, Southern District of California, Southern Division. Joseph E. Ward, Plaintiff, vs. Rogers Brothers Company, Defendant. In Equity. Statement of Evidence Under Equity Rule 75. Filed Jan. 27, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [47]

[Complainant's Exhibit No. 1—Letters Patent No.
991,043—Process of Making Roadways.]

No. 991,043.

THE UNITED STATES OF AMERICA.
TO ALL TO WHOM THESE PRESENTS SHALL
COME:

WHEREAS, Joseph E. Ward, of Long Beach, California, has presented to the COMMISSIONER OF PATENTS a petition praying for the grant of Letters Patent for an alleged new and useful improvement in PROCESSES OF MAKING ROADWAYS, a description of which invention is contained in the specification of which a copy is hereunto annexed and made a part hereof, and has complied with the various requirements of Law in such cases made and provided, and

WHEREAS upon due examination made the said Claimant is adjudged to be justly entitled to a patent under the Law.

Now therefore these LETTERS PATENT are to grant unto the said Joseph E. Ward, his heirs or assigns for the term of SEVENTEEN years from the second day of May, one thousand nine hundred and eleven, the exclusive right to make, use and vend the said invention throughout the United States and the Territories thereof.

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused the seal of the PATENT OFFICE to be affixed at the City of Washington this second day of May, in the year of our Lord one thou-

sand nine hundred and eleven, and of the Independence of the United States of America the one hundred and thirty-fifth.

[Seal]

C. C. BILLINGS,

Acting Commissioner of Patent. [48]

[Endorsed]: Ward vs. Rogers Bros. Co. No. A-3—Eq. Compl's Exhibit No. 1. Filed Nov. 23, 1915. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk.

[Endorsed]: In the Superior Court of the State of California in and for the County of Los Angeles. No. B 10,042. J. E. Ward vs. John R. Ott Contracting Co. Plaintiff's Exhibit 3. Filed Oct. 6, 1914. H. J. Lelande, Clerk. By E. E. Ekdale, Deputy.
[49]

J. E. WARD.

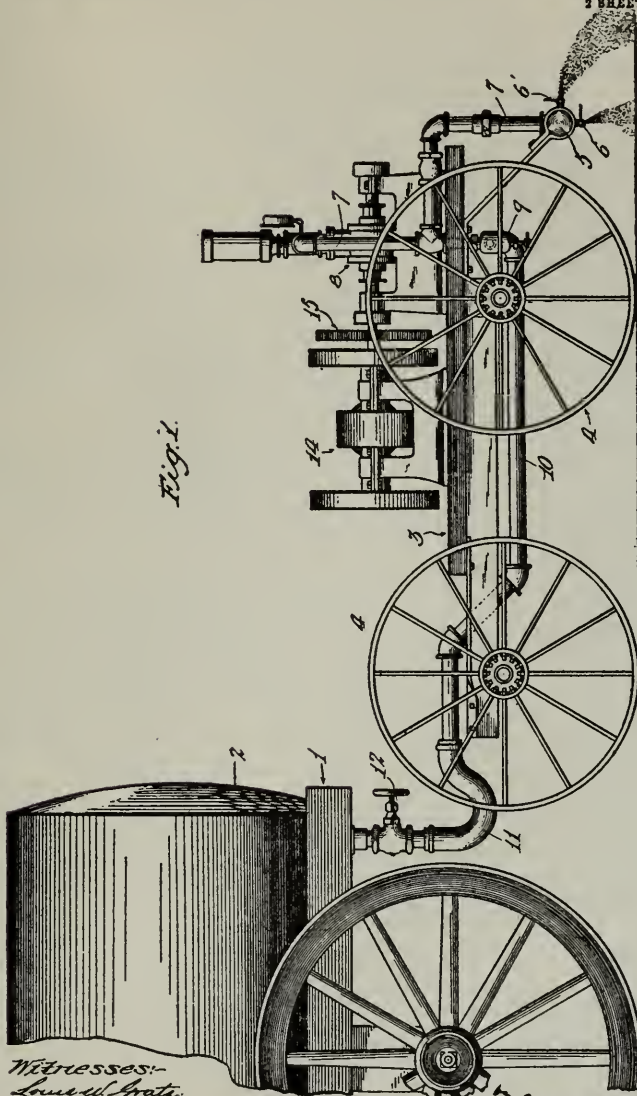
PROCESS OF MAKING ROADWAYS.

APPLICATION FILED MAR. 14, 1910.

991,043.

Patented May 2, 1911.

2 SHEETS-SHEET 1.



Witnesses:-
Louise L. Gratz
Lulu A. Thor.

Inventor
Joseph B Ward
and Healy
attys

UNITED STATES PATENT OFFICE.

JOSEPH E. WARD, OF LONGBEACH, CALIFORNIA.

PROCESS OF MAKING ROADWAYS.

991,043.

Specification of Letters Patent.

Patented May 2, 1911.

Application filed March 14, 1910. Serial No. 549,347.

To all whom it may concern:

Be it known that I, JOSEPH E. WARD, a citizen of the United States, residing at Longbeach, in the county of Los Angeles and State of California, have invented a new and useful Process of Making Roadways, of which the following is a specification.

The invention relates to a process for making roadways by application of oil to sand, gravel or earth forming a compact, dustless and waterproof mixture or combination.

The main object of the present invention is to reduce to a minimum the amount of oil required in making the roadway.

Another object of the invention is to enable the roadway to be made by application of oil thereto in a special manner without necessity of special mechanical treatment, such as stirring and rolling the ground after the application of the oil to finish the surface; the ordinary traffic being alone sufficient to compact and mix the oil with the solid matter of the roadway.

A further object of the invention is to provide for application of the oil to the roadway in such manner that there will be no objectionable deposit of liquid oil in pools or masses, such as would interfere with traffic.

Another object of the invention is to expedite the conversion of the oil to a solid condition by increasing the state of division thereof and thereby correspondingly increasing the rapidity of oxidation. In the formation of an oiled road the gradual oxidation of the oil by the action of the air is an important feature in the conversion of the road surface to a hard resistant condition and my invention provides for exposing the oil to the air in the most effective manner for such oxidation.

The process is specially applicable in connection with a roadway whereon there is a considerable deposit of dust, and in such a connection the process has the further advantage of immediately reducing the surface of the roadway to a dustless condition and of utilizing the dust as an important constituent in the road surface.

The process consists essentially in applying the oil to the road surface in a condition of suspension in the air in such manner that the oil as it settles into contact with the road surface permeates the road surface by reason of its fine state of division; forming a coating over each solid particle in the

road surface; so that in the stirring and compression of the road surface by the ordinary traffic these solid particles will be compacted together and will be caused to form a waterproof compact mass, the oil acting as a binder.

The accompanying drawings illustrate an apparatus suitable for carrying out the invention, and referring thereto:

Figure 1 is a side elevation of the apparatus. Fig. 2 is a rear elevation of the atomizing head or oil distributor. Fig. 3 is a longitudinal section of one of the atomizing nozzles.

1 designates an oil supply means consisting, for example, of an oil wagon carrying a tank 2, and 3 designates a truck connected to said oil wagon to be drawn thereby, said truck having running wheels 4 and carrying means for atomizing and distributing the oil.

The distributor means comprises a distributor head or pipe 5 extending transversely at the rear of the truck 3 and provided with a series of atomizing nozzles 6 at various points along the length thereof and with a supply pipe 7 leading to the outlet of a pump 8 whose inlet is connected to a pipe 10 connected by a flexible hose 11 and valve 12 in the oil tank 2. An engine or motor of any suitable character, indicated at 14, is connected by driving mechanism 15 to operate the pump 8. Each of the atomizing nozzles 6 may comprise a tubular casing 16, a plug 17 fitting therein and having a transverse port 17' communicating with an inlet opening 18 at one side of the casing and an outlet opening 19 at the other side of the casing. The delivery end of the port 17' is preferably flared and the outlet opening 19 is made sufficiently large to allow passage of the flaring blast of atomized oil from the nozzle. Handle means 20 are provided for each valve plug 17. An extra series of nozzles 6' may be provided at the rear of the distributing pipe for use in case an extra supply of oil is needed. A by-pass may be provided around the engine provided with a valve 9.

The process may be carried out as follows: The oil, which is preferably crude petroleum or residuum, of proper gravity and preferably with asphaltum base, is supplied in the tank 1 and being preferably subjected to a preliminary heating before being charged into said tank, so as to render the oil suffi-

ciently fluid for atomization. The oil tank and the truck being drawn over the surface of the roadway, the motor 14 is set in operation to drive the pump 8 and pump the oil from the oil tank 1 and pipes 11 and 10, through the delivery or outlet pipe 7 and distributor pipe 5. The atomizing nozzles 6 are opened by their handle means 20 more or less to supply oil according to the condition of the roadway, the amount of dust thereon, etc., so as to provide for a supply of oil commensurate with the absorbing capacity of the roadway, only so much being supplied as can be taken up by the dust and the porous surface of the roadway as a superficial film on each solid particle or surface without the formation of pools or visible masses of oil. In case an extra supply of oil is needed, the valves 6' are opened distributing the oil as indicated in dotted lines in Fig. 2, in addition to the distribution by the nozzles 6. The oil is forced by the pump 8 through the atomizing nozzles under sufficient pressure to insure atomization, and the openings for the atomizing nozzles are sufficiently contracted to insure that as the oil issues under such pressure it will on encountering the air be broken up into such fine particles that it tends to remain suspended in the air for an appreciable length of time forming a mist or mixture of air and minute particles of oil. This operation of finely dividing the oil to form a mixture with air is well understood under the term "atomization," and the function of the operation in my process is to render the oil capable of permeation or diffusion into and between the solid particles and surface of the roadway, the mixture of air and atomized oil having in this respect the properties of a gas as distinct from those of a liquid or solid.

Where oil is deposited on the roadway by means of the ordinary sprinkling nozzles or by means of forcing the oil in a solid stream into violent contact with the surface of the roadway, the oil tends to collect in pools and has to be violently forced into the interstices of the roadway by mechanical action for the reason that roadway surface dust particles, etc., have no capillary attraction for the oil but rather tend to repel the same until they have been actually wetted with it, but by reducing the oil to an atomized condition and suspending it in the air, it is caused to enter the porous surface of the roadway and to penetrate between the dust particles by a process of diffusion; and when it is deposited upon such surface or particles, it is in the final condition of distribution desired and does not require further mechanical stirring or pressure except to compact the particles together. As the oil supply and atomizing means pass over the surface of the roadway, it, therefore, leaves on the roadway

a deposit of oil substantially covering each and every particle of dust and extending appreciably into the loose or porous dust on the surface of the roadway, the deposit being substantially uniform throughout and serving at once to lay the dust and to give a binding surface for each particle, whereby it is adapted to serve as a constituent of the road surface in the subsequent traffic over the surface by wheeled vehicles, etc., the particles so coated or pressed together forming a compact, dense, and substantially uniform waterproof road surface.

In the interval which elapses between the ejection of the oil from the nozzles and the final compacting of the road surface by the traffic, the oil is maintained in a condition of maximum exposure to the air, thereby expediting the hardening or setting of the oil, both by reason of release of the more volatile constituents and by oxidation.

When the oil is suspended in the air in atomized condition, it will part with the greater portion of its most volatile constituents and lessen the time of evaporation after the oil is deposited on the particles of the road surface, it being deposited in an extremely thin layer or coating, each particle of the atomized oil being in fact deposited as a separate unit and maintaining its exposure to the air until the particles are compacted together as stated. While the oil particles are thus exposed to the air and in contact with the dust and road particles, there is produced a gradual chemical action, converting the oil to a more solid or harder form and binding or combining it with the solid elements of the road surface, this operation proceeding until the final compacting of the road as stated.

In practice the roadways treated by my process are free from all stickiness or slush and can be used by vehicles without any of the material adhering to the wheels, while pedestrians may walk upon or over the same without the oil and road material becoming attached to their shoes, and being carried thereby onto sidewalks or into buildings, thereby effecting a large amount of damage to property situated adjacent to such roadways.

Heretofore roadways freshly treated with crude asphaltum base oil have generally been avoided by vehicles and pedestrians until the oil has been exposed to the action of the air and sun for some considerable length of time and until such oil had lost the greater portion of the volatile oils therefrom by evaporation and oxidation, but by the use of my process a roadway may be used immediately after the application of oil without danger of damaging any article.

What I claim:

1. The process of making a roadway which consists in atomizing oil in contact with air,

in such manner that the oil tends to remain suspended in the air for an appreciable time, bringing the atomized oil and air into contact with a porous road surface, causing the
5 oil to permeate the porous road surface while still in atomized condition, and causing the atomized oil to be deposited on the material of the road surface while said material is agitated and partly suspended.
10 2. The process of making a roadway which consists in atomizing oil in contact with air, maintaining the oil in atomized condition and suspended in the air an appreciable time prior to bringing it into contact with a po-
15 rous road surface, causing the deposit of at-

omized oil on the road surface in a thin layer of atomized oil particles, thereby maintaining the maximum surface of exposure of the oil to contact with the air and with the material of the roadway for hardening of
20 the oil and binding the same to the road material by oxidation.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 5th day of March, 1910.

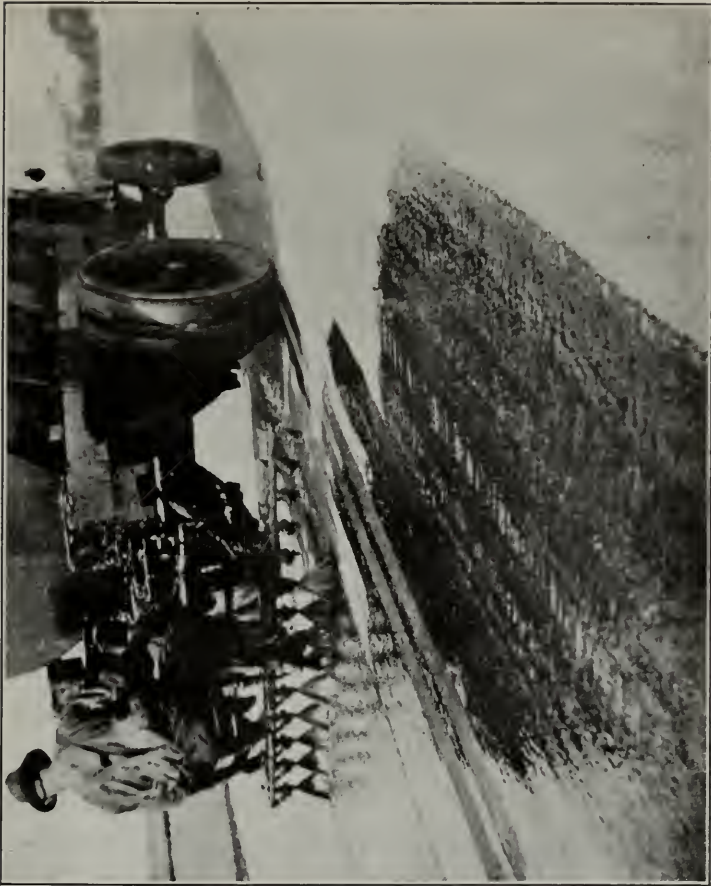
JOSEPH E. WARD..

In presence of—

ARTHUR P. KNIGHT,
FRANK L. A. GRAHAM.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."

[Complainant's Exhibit No. 2—Photograph.]

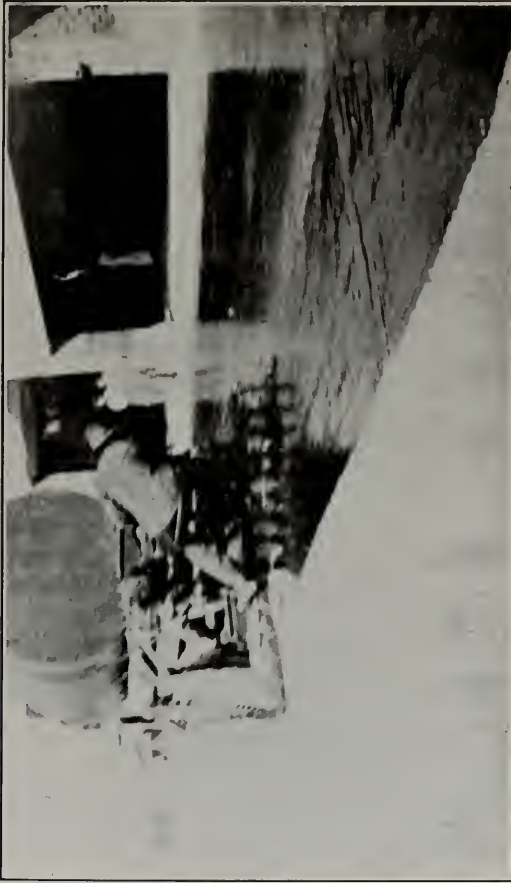


[Endorsed]: Rogers Bros. Auto Truck Spraying Oil With Monarch Distributor on Extension of Harbour Boulevard North of Wilmington, L. A. Mch. 1913. A3 Eq. Compls. Exh. 2. Filed Nov. 23, 1915. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy. [51]

[Complainant's Exhibit No. 3—Photograph.]

[Endorsed]: A3 Eq. Compl. Exh. 3. Filed Nov. 23, 1915. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy. Rogers Bros. Auto Truck Spraying Atlas Oil on Connor's Job, Clearwater, Jan. 2d, 1913. (Hodge made this picture.) [52]

[Defendant's Exhibit "C"—Photograph.]



[Endorsed]: Ward vs. Rogers Bros. Co. No. A3
Eq. Defts. Exhibit No. "C." Filed Nov. 23, 1915.
Wm. M. Van Dyke, Clerk. By Leslie S. Colyer,
Deputy Clerk. [53]

[Petition for Appeal.]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. A-3.

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS COMPANY,

Defendant.

The complainant in the above-entitled suit, conceiving himself aggrieved by the Final Decree made and entered by said Court in the above suit on the 2d day of December, 1915, dismissing complainant's Bill of Complaint, comes now by Frederick S. Lyon, Esq., his solicitor, and petitions said Court for an order allowing complainant to prosecute an appeal from said decree to the Honorable, the United States Circuit Court of Appeals for the Ninth Circuit, under and according to the Laws of the United States in that behalf made and provided, and also for an order fixing the sum of security which complainant shall give and furnish upon such an appeal.

FREDERICK S. LYON,

Solicitor for Complainant.

[Endorsed]: No. A-3—Eq. United States District Court, Southern District of California, Southern Division. Jos. E. Ward vs. Rogers Brothers Co. Petition for Appeal. Filed Jan. 11, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. [54]

*United States District Court, Southern District of
California, Southern Division.*

IN EQUITY—No. A-3.

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS COMPANY,

Defendant.

Assignments of Error.

COMES NOW complainant above named and specifies and assigns the following as the errors upon which he will rely upon his appeal to the United States Circuit Court of Appeals for the Ninth Circuit, from the decree of December 2d, 1915, dismissing complainant's Bill of Complaint:

I. Error in not adjudging and decreeing that complainant was the original, first and sole inventor of the "Process of Making Roadways" described and claimed in letters patent 991,043, and that said letters patent are good and valid in law, and complainant the owner thereof.

II. Error in not adjudging and decreeing that defendant has infringed said letters patent and purposes to continue said infringement thereof.

III. Error in not adjudgment that complainant have the relief against defendant prayed for in said Bill of Complaint. [55]

In order that the foregoing Assignments of Error may be and appear of record, complainant presents the same to the Court and prays that such disposi-

tion may be made thereof as is in accordance with the laws of the United States.

WHEREFORE, the said complainant prays that the said decree of this Court made and entered on December 2d, 1915, be reversed and that the said Court be directed to enter an order setting aside said decree and ordering, adjudging and decreeing to complainant the relief against defendant prayed in said Bill of Complaint.

All of which is respectfully submitted.

FREDERICK S. LYON,
Solicitor for Complainant.

[Endorsed]: No. A-3—Eq. United States District Court, Southern District of California, Southern Division. Joseph E. Ward vs. Rogers Brothers Co. Assignments of Error. Filed Jan. 11, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. [56]

[Order Allowing Appeal, and Fixing Amount of Bond.]

United States District Court, Southern District of California, Southern Division.

IN EQUITY—No. A-3.

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS COMPANY,

Defendant.

In the above-entitled suit the complainant having filed his petition for an order allowing an appeal

from the decree of this court made and entered in this suit on December 2d, 1915, together with Assignments of Error;

Now, on motion of Frederick S. Lyon, Esq., Solicitor for complainant, it is ordered that said appeal be and hereby is allowed to complainant, to the United States Circuit Court of Appeals for the Ninth Circuit from the said decree dismissing complainant's Bill of Complaint, and that the amount of complainant's bond on said appeal be and the same is hereby fixed in the sum of Two Hundred Fifty Dollars.

It is further ordered that upon the filing of such security a certified transcript of the records and proceeds herein be forthwith transmitted to said United States Circuit Court for the Ninth Circuit in accordance with the statutes and the Equity Rules of the Supreme Court of the United States and that such bond or security shall act as a supersedeas of the cost judgment herein.

Dated January 11th, 1916.

OSCAR A. TRIPPET,
District Judge. [57]

[Endorsed]: No. A-3—Eq. United States District Court, Southern District of California, Southern Division. Jos. E. Ward vs. Rogers Brothers Co. Order Allowing Appeal. Filed Jan. 11, 1916. Wm. M. Van Dyke, Clerk. By Leslie S. Colyer, Deputy Clerk. [58]

*United States District Court, Southern District of
California, Southern Division.*

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS COMPANY,

Defendant.

Bond on Appeal.

KNOW ALL MEN BY THESE PRESENTS:
That the United States Fidelity & Guaranty Co. of
Baltimore, Md., a corporation organized and existing
under the laws of the State of Maryland and duly
licensed to transact business in the State of Califor-
nia, is held and firmly bound unto Rogers Brothers
Company, defendant in the above-entitled suit, in
the penal sum of Two Hundred Fifty Dollars (\$250)
to be paid unto the said Rogers Brothers Com-
pany, its successors and assigns for which pay-
ment well and truly to be made The United States
Fidelity & Guaranty Co. of Baltimore, Md., binds
itself, its successors and assigns firmly by these pres-
ents.

Sealed with the corporate seal and dated this 11th
day of January, 1916.

The condition of the above obligation is such that
whereas the said Joseph E. Ward, plaintiff in the
above-entitled suit, is about to take an appeal to the
United States Circuit Court of Appeals for the Ninth
Circuit, to reverse a decree made, rendered and en-
tered December 2, 1915, by the District Court of the
United States for the Southern District of Califor-

nia, Southern Division, [59] in the above-entitled cause dismissing plaintiff's Bill of Complaint.

NOW, THEREFORE, the condition of the above obligation is such that if said Joseph E. Ward shall prosecute his appeal to effect and answer all costs which have been or may be adjudged against him if he fail to make good his appeal, then this obligation shall be void; otherwise to remain in full force and effect.

THE UNITED STATES FIDELITY &
GUARANTY CO. OF BALTIMORE, MD.

[Seal]

By H. W. SCHRODER,

Attorney in Fact.

State of California,

County of Los Angeles,—ss.

On this 11th day of January in the year one thousand nine hundred and sixteen, before me, Hallie D. Winebrenner, a notary public in and for said county and State, residing therein, duly commissioned and sworn, personally appeared W. H. Schroder known to me to be the duly authorized attorney in fact of the United States Fidelity and Guaranty Company, and the same person whose name is subscribed to the within instrument as the attorney in fact of said company, and the said W. H. Schroder duly acknowledged to me that he subscribed the name of The United States Fidelity and Guaranty Company thereto as principal and his own name as attorney in fact.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year

in this certificate first above written.

[Seal] HALLIE D. WINEBRENNER,
Notary Public in and for Los Angeles County, State
of California. [60]

[Endorsed]: No. A-3. United States District Court, Southern District of California, Southern Division. Joseph E. Ward, Plaintiff, vs. Rogers Brothers Company, Defendant. Bond on Appeal. The Within Bond and Surety Thereon is Hereby Approved This — day of January, 1916. Oscar A. Trippet, U. S. District Judge. Frederick S. Lyon, 504-7 Merchants Trust Building, Los Angeles, Cal., Solicitor for Plaintiff. Filed Jan. 12, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk. [61]

State of California,
County of Los Angeles,—ss.

Sully Russo, being first duly sworn, deposes and says, that he is of lawful age and a draftsman in the employ of Frederick S. Lyon of Los Angeles, California; that on January 12, 1916, he served the attached praecipe upon Hartley Shaw, an attorney for the defendant, by handing to and leaving with said Hartley Shaw a true and correct copy thereof.

SULLY RUSSO.

Subscribed and sworn to before me, a notary public, this 20th day of January, 1916, at Los Angeles, California.

[Seal] WINFIELD D. STARK,
Notary Public Within and for Los Angeles County,
State of California. [62]

UNITED STATES OF AMERICA.

*District Court of the United States, Southern
District of California, Southern Division.*

CLERK'S OFFICE.

IN EQUITY—No. A-3.

JOSEPH E. WARD,

Plaintiff,

vs.

ROGERS BROTHERS COMPANY,

Defendant.

Praeceptum [for Transcript of Record.]

To the Clerk of Said Court:

Sir: Please issue as a Transcript of Record on Appeal in this suit a copy of each of the following, duly certified as required by law, and in accordance with the Equity Rules, on plaintiff's appeal herein to the United States Circuit Court of Appeals for the Ninth Circuit:

The Bill of Complaint;

The Answer of Defendant;

The decree dismissing the Bill;

The paper exhibits as offered in evidence and referred to in the "Statement of Evidence";

The "Statement of Evidence" under Equity Rule 75;
[63]

Petition for Order Allowing Appeal;

Assignments of Error;

Order allowing Appeal;

Bond on Appeal.

FREDERICK S. LYON,
Solicitor for plaintiff.

[Endorsed]: No. A-3. U. S. District Court, Southern District of California, Southern Division. Joseph E. Ward vs. Rogers Bros. Co. Praeipce for Transcript on Appeal. Filed Jan. 20, 1916. Wm. M. Van Dyke, Clerk. By Chas. N. Williams, Deputy Clerk.

Received a copy of the within Praeipce this 12th day of January, 1916.

Solicitor for Defendant. [64]

**[Certificate of Clerk U. S. District Court to
Transcript of Record.]**

*In the District Court of the United States, in and for
the Southern District of California, Southern
Division.*

No. A-3—EQUITY.

JOSEPH E. WARD,

Complainant,

vs.

ROGERS BROS. COMPANY,

Defendant.

I, Wm. M. Van Dyke, Clerk of the District Court of the United States of America, in and for the Southern District of California, do hereby certify the foregoing sixty-four (64) typewritten pages, numbered from 1 to 64, inclusive, to be a full, true and correct copy of the Bill of Complaint, Answer, Decree, Statement of Evidence, Complainant's Exhibits Nos. 1, 2 and 3, Defendant's Exhibit No. "C," Peti-

tion for Appeal, Assignments of Error, Order Allowing Appeal, Bond on Appeal, and Praecipe for Preparation of Transcript of Record in the above and therein-entitled cause, and that the same together constitute the record upon the appeal of Joseph E. Ward, herein, in accordance with the Praecipe for Preparation of Transcript filed in my office on behalf of the Appellant by his solicitor of record.

I do further certify that the cost of the foregoing Transcript Upon Appeal is \$34.20/100, the amount whereof has been paid me by Joseph E. Ward, the appellant.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of said District Court of the United States of America, in and for the Southern District of California, Southern Division, this 7th day of April, in the year of our Lord one thousand nine hundred and sixteen, and of our Independence, the one hundred and fortieth.

[Seal] WM. M. VAN DYKE,
Clerk of the District Court of the United States of
America, in and for the Southern District of
California.

By Leslie S. Colyer,
Deputy Clerk.

[Ten Cent Internal Revenue Stamp Canceled
4/7/16. L. S. C.]

[Endorsed]: No. 2775. United States Circuit Court of Appeals for the Ninth Circuit. Joseph E. Ward, Appellant, vs. Rogers Brothers Company, a Corporation, Appellee. Transcript of Record. Upon Appeal from the United States District Court for the Southern District of California, Southern Division.

Filed April 10, 1916.

F. D. MONCKTON,

Clerk of the United States Circuit Court of Appeals
for the Ninth Circuit.

**[Order Under Rule 16, Extending Time to April 1,
1916, to Docket Cause and File Record.]**

*In the United States Circuit Court of Appeals, Ninth
Judicial Circuit.*

JOSEPH E. WARD,

Appellant,

vs.

ROGERS BROTHERS COMPANY,

Appellee.

Good cause appearing therefor, it is hereby ordered, that the time heretofore allowed said appellant to docket said cause and file the record thereof, with the clerk of the United States Circuit Court of Appeals for the Ninth Circuit, be and the same is hereby enlarged and extended to and including the 1st day of April, 1916.

Dated at Los Angeles, California, February 8th,
1916.

TRIPPET,
U. S. District Judge.

[Endorsed]: No. —. United States Circuit
Court of Appeals for the Ninth Circuit. Joseph E.
Ward, Appellant, vs. Rogers Brothers Company, Ap-
pellee. Order Extending Time to File Record.
Filed Feb. 10, 1916. F. D. Monckton, Clerk.

**[Order Under Rule 16, Extending Time to July 1,
1916, to Docket Cause and File Record.]**

*United States Circuit Court of Appeals, for the
Ninth Circuit.*

(No. A-3—EQ.)

S. D.

JOSEPH E. WARD,

Appellant,

vs.

ROGERS BROTHERS COMPANY,

Appellee.

Good cause appearing therefor, it is hereby or-
dered that the time within which appellant in the
above-entitled action may file record and docket cause
in the United States Circuit Court of Appeals for the
Ninth Circuit be extended to and including the 1st
day of July, 1916.

Los Angeles, 3/28, 1916.

TRIPPET,
District Judge.

[Endorsed]: No. ——. United States Circuit Court of Appeals for the Ninth Circuit. Joseph E. Ward, Appellant, vs. Rogers Brothers Company, Appellee. Order Extending Time to Docket Cause and File Record. Filed Apr. 3, 1916. F. D. Monckton, Clerk.

No. 2775. United States Circuit Court of Appeals for the Ninth Circuit. Two Orders Under Rule 16 Enlarging Time to July 1, 1916, to File Record thereof and to Docket Case. Refiled Apr. 10, 1916. F. D. Monckton, Clerk.